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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KRUEK, KEVIN R

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/787,501

Applicant(s)

RODWAY, GILES HENRY

Examiner

Kevin R. Krueer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-33,37-40,42,46-54,57-71,74 and 75 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-33,37-40,42,46-54,57-71,74 and 75 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 28, 31-33, 37, 40, 42, 46, 47, 50, 57, 60-62, 64-68, and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 1,117,118 (herein referred to as Lanza) in view of Hori et al (US 4,049,904) and Bartoszek (US 4,804,702).

Lanza teaches an insulated electrical component, advantageously a conductor, preferably a wire, comprising an electrical component at least a portion of which is surrounded by electrical insulation comprising an inner layer comprising a crosslinked olefin polymer and an outer layer comprising a crosslinked vinylidene fluoride homopolymer or copolymer (page 1, lines 50+). The olefin polymer may be a polyolefin, for example polyethylene or polypropylene or a copolymer of an olefin with a copolymer such as ethylene with vinyl acetate (page 1, lines 68+). The layers may be crosslinked together through their whole depth (page 2, lines 10+). The layers are applied by extrusion (page 1, lines 59+), which is understood to implicitly teach that the layers are brought into contact with each other "at a temperature above the melting or softening point" of the polymer material in at least one of the layers.

Lanza does not teach that the olefin copolymer should comprise the claimed first polymer comprising "a carbonyl-containing polymer having a non-aromatic backbone

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and comprising at least 5wt% of repeating units derived from a monomer which can be copolymerized with an olefinic monomer and which contains a carboxylic acid ester."

However, Hori teaches a wire comprising a metallic layer adhered to an ethylene unsaturated carboxylic acid ester copolymer (abstract). Suitable esters include ethyl acrylate, propyl acrylate, butyl acrylate, ethyl methacrylate, propyl methacrylate, and butyl methacrylate (col 2, lines 31+). Hori teaches that polymerizing carboxylic acid ester with the ethylene monomers, the adhesion to the metallic layer is improved (col 2, lines 56+). The courts have held that it is not inventive to discover the optimum or workable range by routine experimentation when the general conditions of the claimed invention are disclosed in the prior art (See MPEP 2141.05). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to copolymerize the ethylene taught in Lanza with a sufficient amount of carboxylic acid ester to increase the adhesion of said layer to the metallic conductive layer.

With regard to claims 31, 32, 37, 46, 47, 60, and 67, the examiner takes the position that Lanza reads on said composition wherein the polyethylene content is 0%. Alternatively, Lanza teaches that the middle layer may comprise HDPE (see examples) or an ethylene copolymer. The courts have held that it is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose in order to form a third composition to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught in the prior art. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a composition comprising HDPE and

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the claimed ethylene-carboxylic acid ester as the intermediate layer of the wire taught in Lanza. The motivation for doing so would have been that Lanza teaches both HDPE and ethylene copolymers are useful as intermediate layer compositions.

With regards to the method limitations of claims 2, 5, 10, and 11, the examiner takes the position that the method of making a product does not patentably distinguish said product from a product taught in the prior art unless it can be shown that the method of making the product inherently results in a materially different product. In the present application, no such showing has been made.

Lanza in view of Vodges does not teach that the PVDF layer should comprise a copolymer of VDF and hexafluoropropylene. However, Bartoszek teaches a composition comprising a PVDF co-polymer with a hexafluoropropylene of 12wt% (see claim 2) that exhibits improved smoke and flame retardant properties (abstract). Said polymers are especially useful in the wiring industry (col 1, lines 6+). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the composition taught in Bartoszek as the PVDF layer taught in Lanza. The motivation for doing so would have been that said composition is flame and smoke retardant.

3. Claims 29, 30, 38, 39, 48, 49, 51-54, 58, 59, 63, 69, 71, 74, and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 1,117,118 (herein referred to as Lanza) in view of Hori et al (US 4,049,904) and Bartoszek (US 4,804,702), as applied to claims above, and further in view of Vodges et al (US 4,693,940) for reasons of record.

Lanza in view of Hori and Bartoszek is relied upon as above, but does not teach that the interlayer surfaces of the PVDF should be irradiated. However, Vogdes teaches a method of enhancing the bonding between incompatible polymers in a laminate structure by irradiating the laminate (col 1, lines 63+). The method results in part from chemical crosslinking across the interface between the layers. It is therefore essential that each of the polymeric compositions be radiation crosslinkable. Radiation crosslinking agents are preferably included in the composition to assist in making them radiation crosslinkable and to improve the strength of the bond between the layers (col 2, lines 36+). The crosslinkers are included in one or both compositions (see Tables A and B). The method should be done at such conditions to allow for at least a two-fold increase in the peel strength of the laminate (col 3, lines 41+). Specifically, heat treatment of the laminate should be carried out at a temperature higher than the melting point of at least one, and preferably all of the polymers in each of the compositions (col 3, lines 49+). The method is especially useful in for heat shrinkable tubes, especially for electrical insulation purposes (col 2, lines 51+). It would have been obvious to one of ordinary skill in the art to irradiate the laminate taught by Lanza. The motivation for doing so would have been to improve interlayer adhesion.

With regards to the claimed bond strength and delamination limitations, Vogdes teaches that the amount of bonding is proportional to the conditions in heat treatment and irradiation steps (col 3, lines 41+) as well as the amount of crosslinker present (col 2, lines 42+). Thus, it would have been obvious to one of ordinary skill in the art to vary the radiation and heat treatment steps as well as the amount of crosslinker present in

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order to control the adhesive strength of the resulting substrate to the adhesive taught in Lanza.

The examiner further notes that co-extrusion of such wire coatings is common in the art (see Miyaki) and that it would have been obvious to one of ordinary skill in the art at the time the invention was made to co-extrude the layers of Lanza because such a method is standard/known in the art.

Response to Arguments

Applicant's arguments filed April 14, 2006 have been fully considered but they are not persuasive.

Applicant argues Lanza does not state that his procedure results in crosslinking of the polymers across the interface between layers. The examiner agrees but notes that Lanza was never relied upon for such a teaching. Rather, Vogdes teaches a method of enhancing the bonding between incompatible polymers in a laminate structure by irradiating the laminate (col 1, lines 63+).

Applicant further argues Lanza does not teach the polymer can be a copolymer of an olefin and an alkyl acrylate. The examiner agrees but notes Hori, not Lanza, was relied upon for said teaching. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant argues the claims of Hori define the first and second polymers taught therein much narrower than the general description. Said

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argument is noted but is not persuasive because the reference may be relied upon for all that it reasonably teaches and is not limited to the claimed/preferred embodiments.

With respect to Hori, Applicant argues said metallic foil functions differently than the foil utilized in Lanza and the reference, therefore, is not analogous. The examiner respectfully disagrees. The relied upon teachings of Hori deal with the adhesion between metal and an adjacent layer. Since the skilled artisan, given the teachings of Lanza, would have been interested in improving the adhesion between an ethylene copolymer and a metallic subject, the examiner maintains the references are analogous. Thus, Hori does not have to be in the field of current carrying conductors for it to be analogous and properly combinable with Lanza. Furthermore, the combination of said references is not an impermissible selection of only those parts of a reference that support a given position.

Applicant further argues that Hori does not teach a wire. Without conceding said point, the examiner notes Hori does not have to teach a wire to be considered analogous to the teachings of Lanza. Specifically, Hori is reasonably pertinent to a problem with which the inventor was concerned: improved adhesion between an ethylene copolymer and a metallic layer.

Applicant argues the examiner has not asserted there is any teaching, suggestion, or motivation to combine the teachings of Lanza and Hori. The examiner respectfully disagrees. As noted in the rejection, it would have been obvious to combine said teachings in order to improve adhesion between the layers taught in Lanza.

With respect to Vodges, Applicant argues the examiner has not asserted that there is any teaching, suggestion, or motivation to combine Lanza and Vodges. The examiner respectfully disagrees and points applicant to the motivation statement included in the rejections above. Specifically, the skilled artisan would combine said teachings in order to improve adhesion between the layers of the laminate taught in Lanza.

According to Applicant, Vodges is directed to the preparation of a laminate not related to a current carrying conductor. The examiner notes Vodges does not necessarily need to teach a current carrying conductor to be properly combinable with Lanza. Vodges merely needs to be reasonably pertinent to a problem with which the invention was concerned. In the present case, Vodges is analogous because it is concerned with adhesion between incompatible polymers.

Applicant further argues Vodges' procedure requires that the two polymeric layers should be irradiated in the absence of a metal substrate. The examiner has fully reviewed said reference and cannot find said statement. Furthermore, the examiner notes that a method of making a product does not patentably distinguish the product from a product made in the prior art unless it can be shown that the method of making the product inherently results in a materially different product. In the present application, no such showing has been made. Said argument is also not commensurate in scope with the method claims.

With regards to the examiner's comments about co-extrusion, applicant argues co-extrusion is not referred to in Lanza and that the only radiation procedure disclosed

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in Lanza requires that the two layers should be separately extruded and crosslinked, with the first layer being crosslinked by radiation before the second layer is applied.

The examiner notes Lanza was never relied upon for such a teaching. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant further argues the claimed invention provides excellent and unexpected properties with respect to scrape abrasion resistance, cold impact resistance, and solvent resistance in comparison to the insulated wire according to Lanza. Said data has been fully considered but is not persuasive. Furthermore, the examiner notes it is not clear what comparative example applicant believes correlates to the laminate of Lanza.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R. Kruer whose telephone number is 571-272-1510. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin R. Kruer
Patent Examiner-Art Unit 1773